Glutathione

Endogenous antioxidant tripeptide (γ-glutamyl-cysteinyl-glycine)

CARD 102

CLASS	CLINICAL CATEGORY	EVIDENCE LEVEL	OVERALL STATUS
Endogenous antioxidant tripeptide	Oxidative stress / supplement use	Low / small human trials	No FDA-approved product (US)



KEY APPLICATIONS

- **Antioxidant status** — Blood levels in RCTs
- **Parkinson's research** — Intranasal trials
- **Immune markers** — Secondary outcomes
- **Compounded injections** — 2026 quality alerts

Studied for: raising glutathione stores and oxidative-stress conditions. Human trials are small; no clinical benefit is established for any disease.

HOW IT WORKS IN THE BODY

Glutathione (GSH) → Neutralizes oxidants → Oxidized GSSG → Recycled by reductase

- Made in the body from **glutamate, cysteine and glycine**.
- The main **intracellular thiol antioxidant**.
- Oral use raised **blood and tissue stores** in a 6-month RCT.
- Higher levels have **not been shown** to improve disease outcomes.

QUICK PRACTICAL INFO

HALF-LIFE	ROUTES STUDIED
Short in plasma	Oral, intranasal, IV (research)
PHARMACOKINETICS	**STABILITY**
Oral uptake debated; stores rose in one RCT	Oxidizes readily in solution
INTERACTIONS	**MONITORING**
Not well characterized	Not defined outside trials

EVIDENCE & SAFETY

EVIDENCE

LOW
SMALL HUMAN TRIALS

- Oral RCT: **stores rose** vs placebo (54 adults).
- Intranasal Parkinson's trial: **not superior to placebo**.
- Disease benefit **not established**.

CLINICAL CAUTION

- Long-term injectable safety **not established**.
- 2026 recalls: **endotoxin** in compounded vials.
- **No FDA-approved** glutathione product in the US.
- Caution in **pregnancy and lactation**.

REGULATORY STATUS

FDA	EMA	ANVISA	WADA	Research	Off-label
No approved product; oral supplement	No central authorization	Status not confirmed	IV over 100 mL / 12 h prohibited (M2.2)	Yes, small RCTs	No established backing

CLINICAL READ IN 10 SECONDS

- The body's main **antioxidant tripeptide**.
- Oral use **raised stores** in one RCT.
- **No proven clinical benefit**.
- Injectables: **2026 contamination recalls**.

KEY REFERENCES

Richie et al., 2015 — Eur J Nutr (6-month oral RCT)

Mischley et al., 2017 — J Parkinsons Dis (phase IIb, intranasal)

CDC, 2026 — compounded glutathione and endotoxin

FDA — supplement-grade glutathione not for injectables

Technical, informational content. It does not replace individualized clinical judgment or constitute a recommendation. No dose, protocol or source is provided.